

In re Patent Application of
STORM ET AL.
Serial No. **Not Yet Assigned**
Filed: **Herewith**

In the Specification:

Please replace paragraph [0008] on page 3 with the following rewritten paragraph:

~~The invention, which is defined in claims 1 and 8, is based upon combining conventional integrating mode with logarithmic mode.~~

This and other objects, advantages and features in accordance with the present invention are provided by an image sensor comprising an array of pixels, with each pixel comprising a photodiode. A first output circuit may derive a linear output signal by applying a reset signal to the photodiode and reading a voltage on the photodiode after an integration time. A second output circuit may derive a logarithmic output signal by reading a near instantaneous illumination-dependent voltage on the photodiode that is a logarithmic function of the illumination.

The first output circuit may comprise a reset switch for applying a reset voltage to the photodiode. The reset switch may comprise a reset transistor including a conducting terminal connected to the photodiode. A readout switch may turn on the conducting terminal of the reset transistor after expiration of the integration time. The second output circuit may comprise an amplifier, and a log select switch for connecting the amplifier to the photodiode.

The amplifier may comprise a differential amplifier having an inverting input connected to the conducting terminal of the reset transistor, and a non-inverting input connected to a reference voltage. The image sensor may further comprising a calibration circuit for calibrating each pixel before deriving the logarithmic output signal. The

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calibrating circuit may comprise a constant current source selectively connected to each respective pixel.

An output node may be associated with each photodiode, and wherein the linear and logarithmic output signals may be derived from the output node. The calibration circuit may further comprise a switch connected between the photodiode and the output node for isolating the photodiode from the output node while calibration takes place.

Another aspect of the present invention is directed to a method for operating an image sensor comprising an array of pixels, with each pixel comprising a photodiode. The method may comprise generating a linear output signal from each pixel, and generating a logarithmic output signal from each pixel. The method may further comprise selecting the linear output signal if the pixel has not saturated during generation of the linear output signal, otherwise, the logarithmic output signal is selected.